FIG. 1

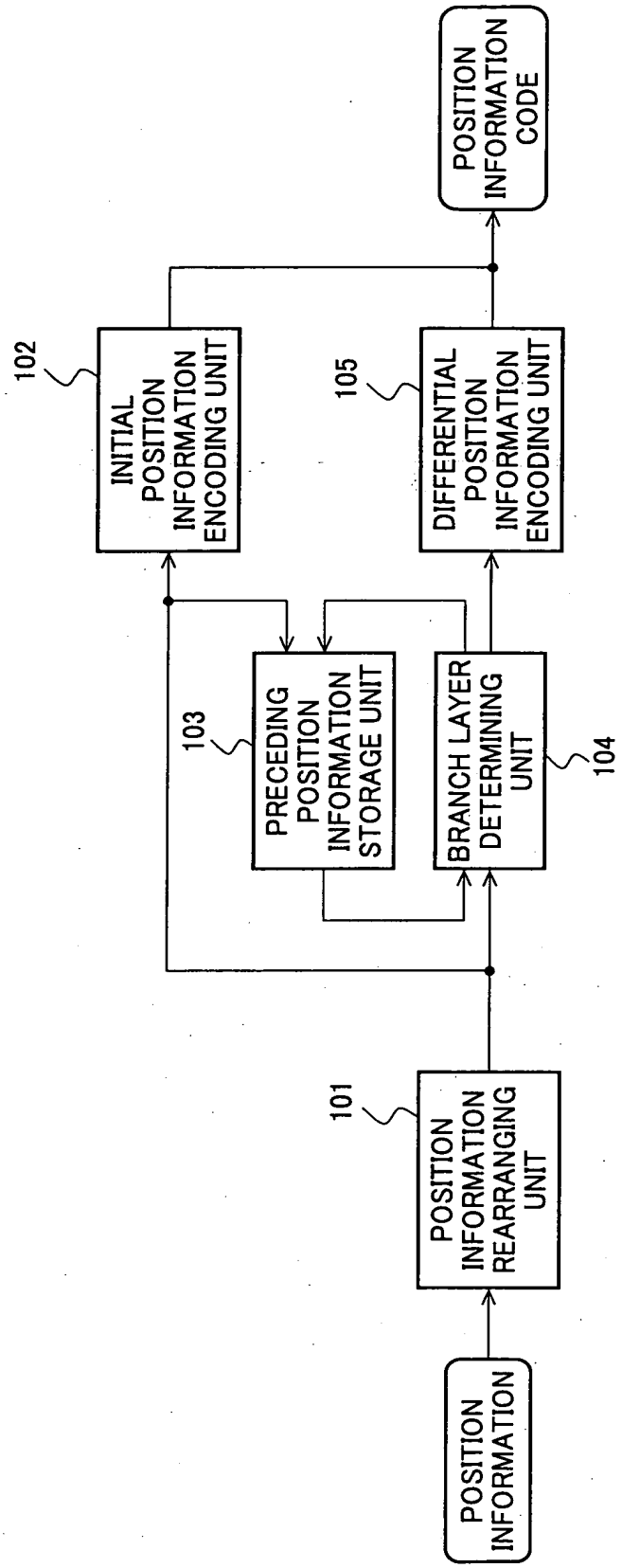

POSITION INFORMATION
101
POSITION INFORMATION REARRANGING UNIT
102
INITIAL POSITION INFORMATION ENCODING UNIT
103
PRECEDING POSITION INFORMATION STORAGE UNIT
104
BRANCH LAYER DETERMINING UNIT
105
DIFFERENTIAL POSITION INFORMATION ENCODING UNIT
POSITION INFORMATION CODE

FIG. 2

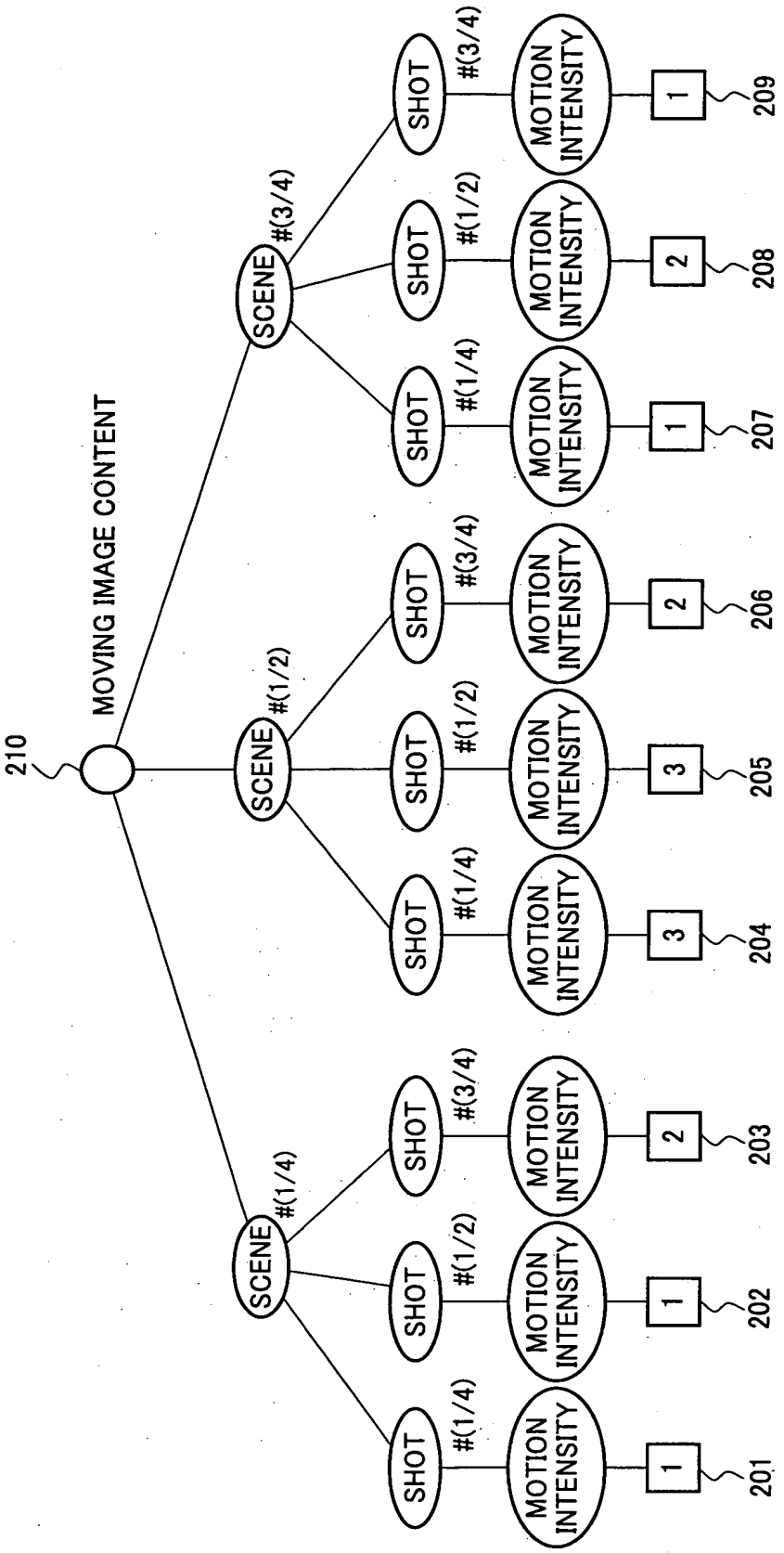

210
MOVING IMAGE CONTENT
SCENE
#(1/4)
SCENE
#(1/2)
SCENE
#(3/4)
SHOT
#(1/4)
SHOT
#(1/2)
SHOT
#(3/4)
MOTION INTENSITY
1
2
3
201
202
203
204
205
206
207
208
209

FIG. 3

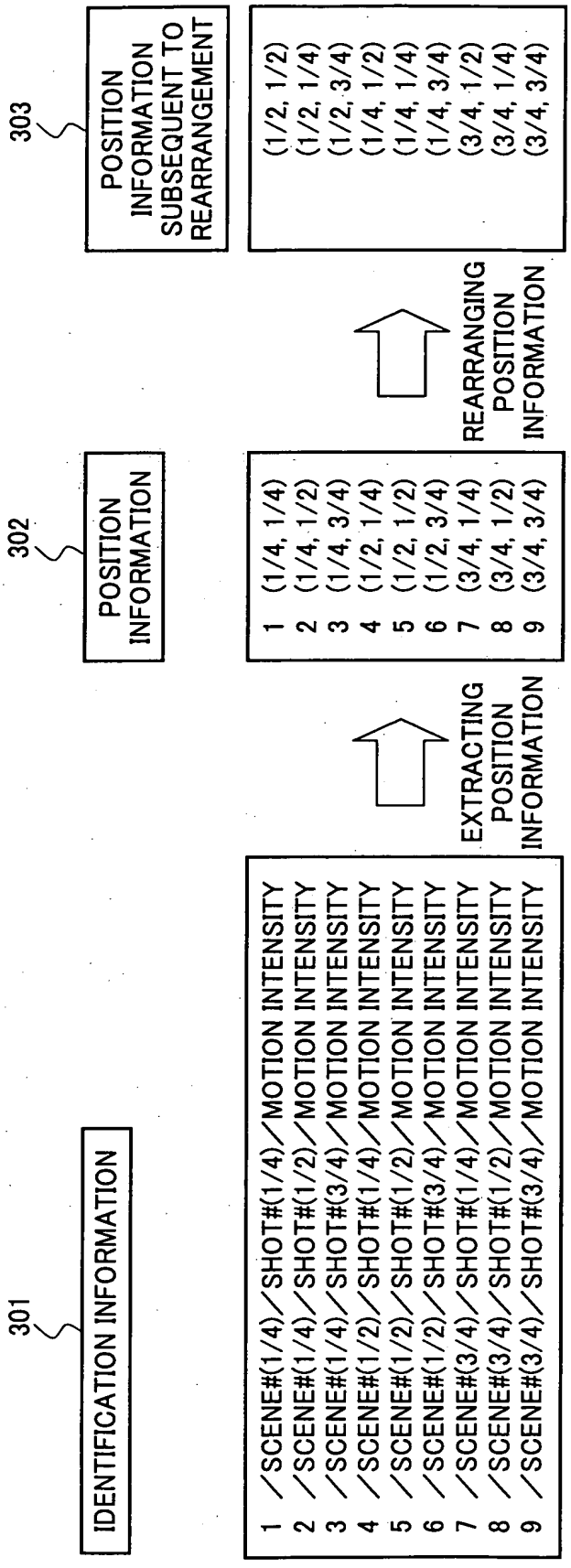
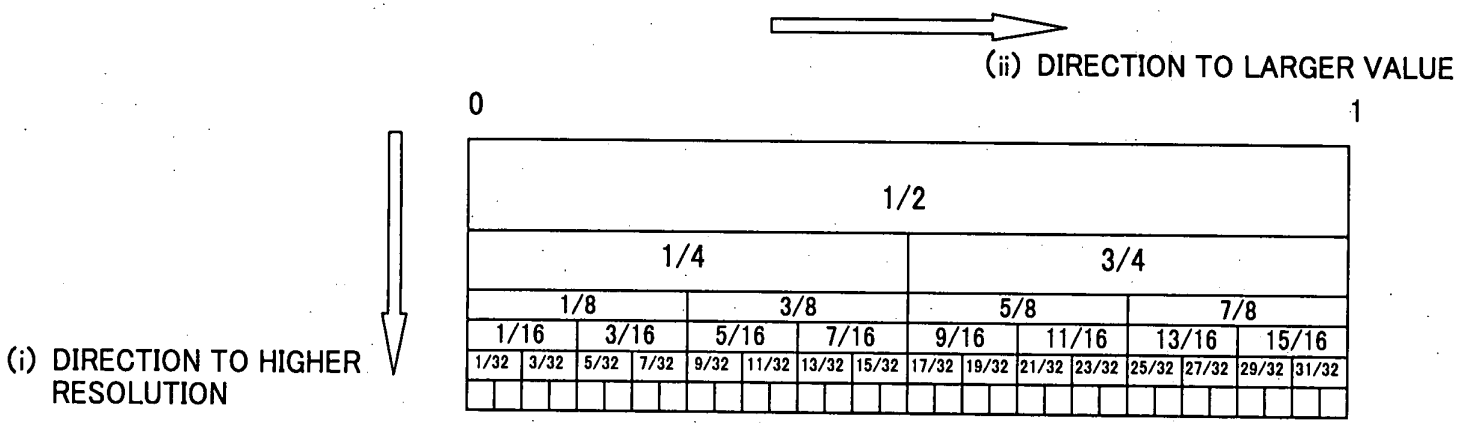

301
IDENTIFICATION INFORMATION
1 /SCENE#(1/4)/SHOT#(1/4)/MOTION INTENSITY
2 /SCENE#(1/4)/SHOT#(1/2)/MOTION INTENSITY
3 /SCENE#(1/4)/SHOT#(3/4)/MOTION INTENSITY
4 /SCENE#(1/2)/SHOT#(1/4)/MOTION INTENSITY
5 /SCENE#(1/2)/SHOT#(1/2)/MOTION INTENSITY
6 /SCENE#(1/2)/SHOT#(3/4)/MOTION INTENSITY
7 /SCENE#(3/4)/SHOT#(1/4)/MOTION INTENSITY
8 /SCENE#(3/4)/SHOT#(1/2)/MOTION INTENSITY
9 /SCENE#(3/4)/SHOT#(3/4)/MOTION INTENSITY
EXTRACTING POSITION INFORMATION
302
POSITION INFORMATION
1 (1/4, 1/4)
2 (1/4, 1/2)
3 (1/4, 3/4)
4 (1/2, 1/4)
5 (1/2, 1/2)
6 (1/2, 3/4)
7 (3/4, 1/4)
8 (3/4, 1/2)
9 (3/4, 3/4)
REARRANGING POSITION INFORMATION
303
POSITION INFORMATION SUBSEQUENT TO REARRANGEMENT
(1/2, 1/2)
(1/2, 1/4)
(1/2, 3/4)
(1/4, 1/2)
(1/4, 1/4)
(1/4, 3/4)
(3/4, 1/2)
(3/4, 1/4)
(3/4, 3/4)

FIG. 4A

1／2→1／4→3／4→1／8→3／8→5／8→7／8→1／16→・・・

FIG. 4B



10/543005

FIG. 5

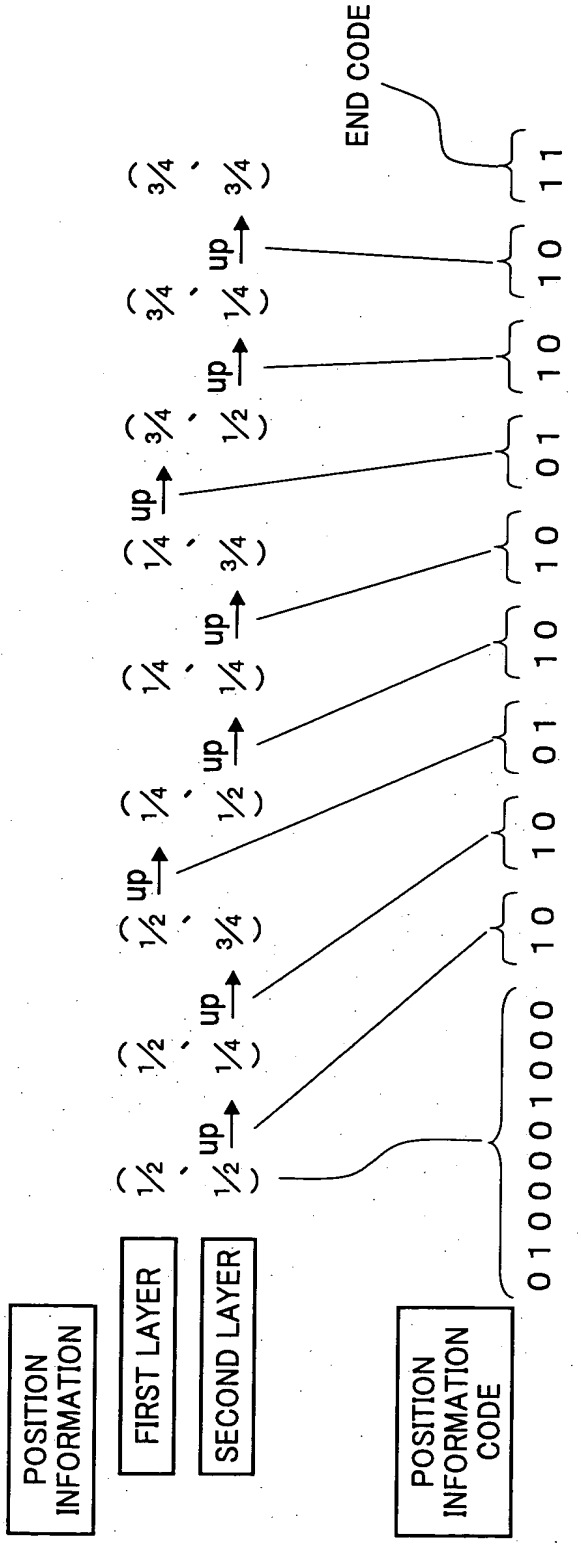

POSITION INFORMATION
FIRST LAYER
SECOND LAYER
POSITION INFORMATION CODE
END CODE
(1/2, 1/2)
up
(1/2, 1/4)
up
(1/2, 3/4)
up
(1/4, 1/2)
up
(1/4, 1/4)
up
(1/4, 3/4)
up
(3/4, 1/2)
up
(3/4, 1/4)
up
(3/4, 3/4)
01 00 00 01 00 00
10
10
01
10
10
01
10
10
01
10
11

FIG. 6

CODE (BINARY NOTATION)	MEANING OF CODE
00	DEFICIENCY CODE
01	INCREASE IN FIRST LAYER (INITIAL VALUE SET IN LOWER LAYER)
10	INCREASE IN SECOND LAYER
11	END CODE

FIG. 7

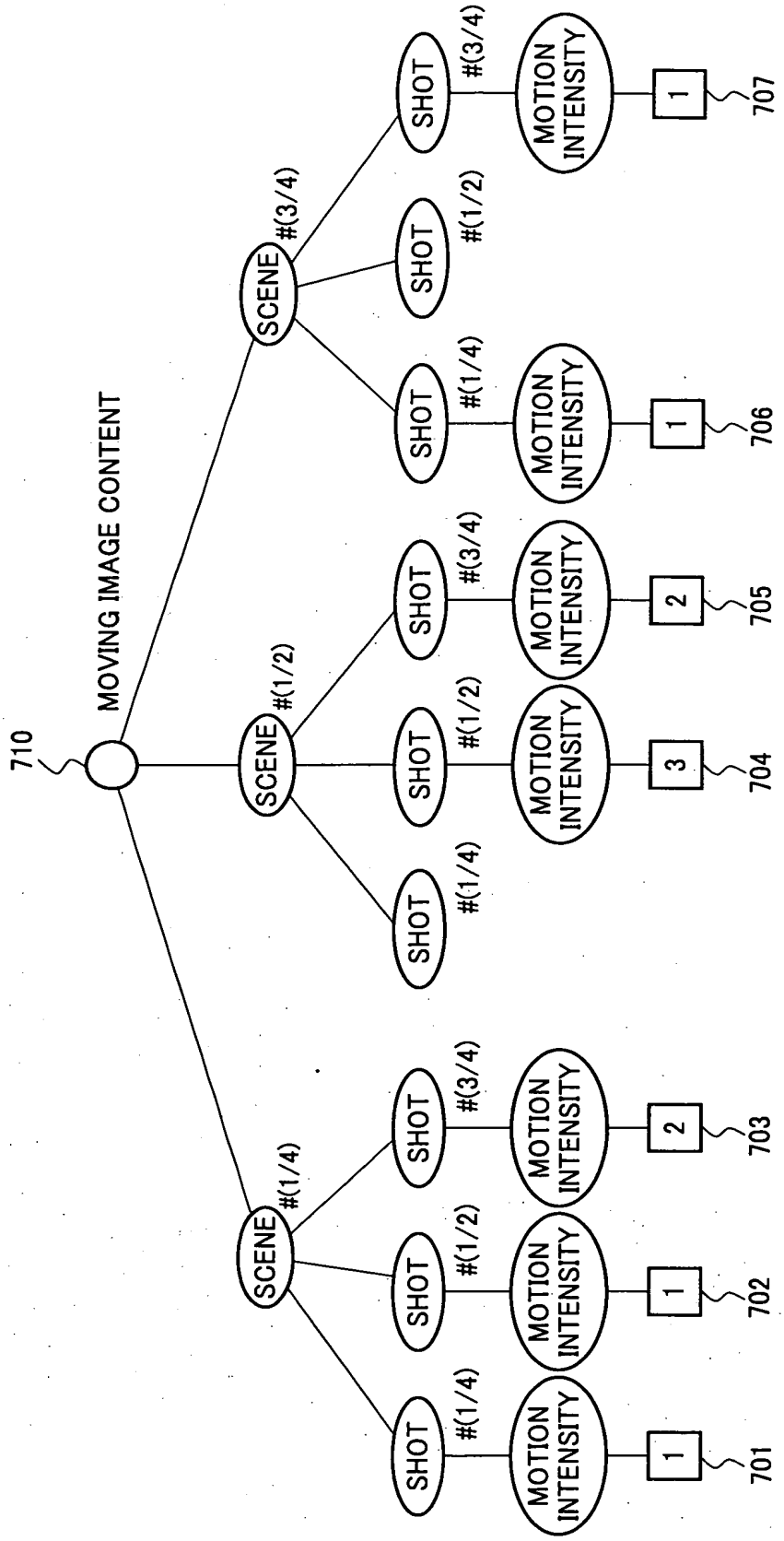

710
MOVING IMAGE CONTENT
SCENE
#(1/4)
SCENE
#(1/2)
SCENE
#(3/4)
SHOT
#(1/4)
SHOT
#(1/2)
SHOT
#(3/4)
MOTION INTENSITY
1
2
3
701
702
703
704
705
706
707

FIG. 8

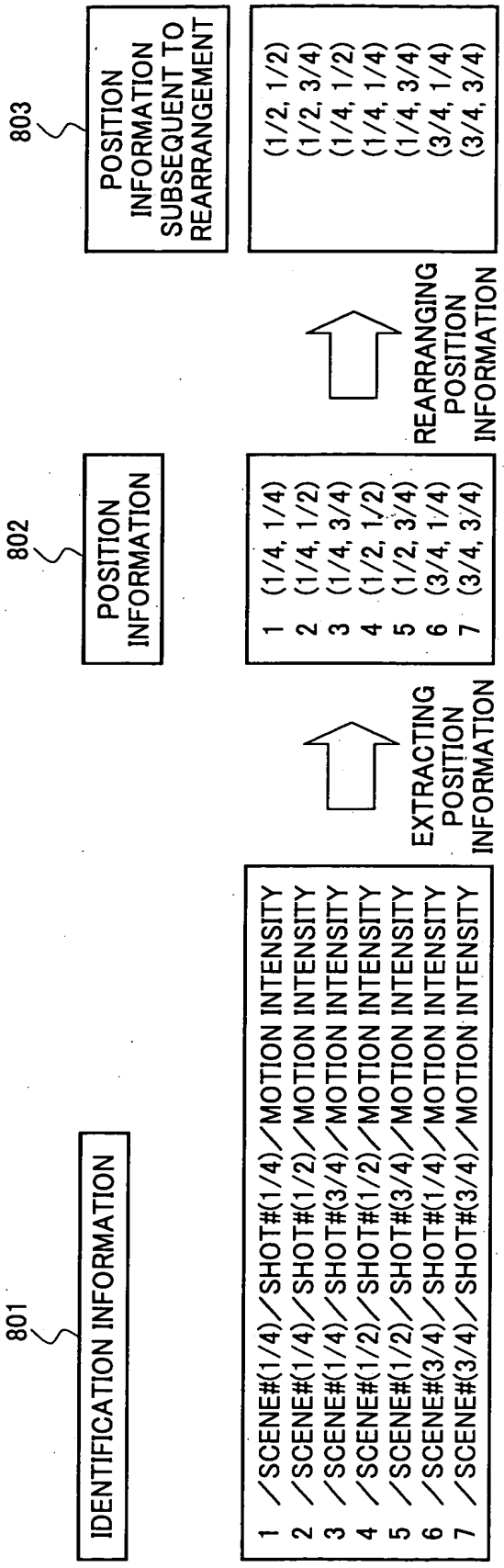

801
IDENTIFICATION INFORMATION
1 /SCENE#(1/4)/SHOT#(1/4)/MOTION INTENSITY
2 /SCENE#(1/4)/SHOT#(1/2)/MOTION INTENSITY
3 /SCENE#(1/4)/SHOT#(3/4)/MOTION INTENSITY
4 /SCENE#(1/2)/SHOT#(1/2)/MOTION INTENSITY
5 /SCENE#(1/2)/SHOT#(3/4)/MOTION INTENSITY
6 /SCENE#(3/4)/SHOT#(1/4)/MOTION INTENSITY
7 /SCENE#(3/4)/SHOT#(3/4)/MOTION INTENSITY
EXTRACTING POSITION INFORMATION
802
POSITION INFORMATION
1 (1/4, 1/4)
2 (1/4, 1/2)
3 (1/4, 3/4)
4 (1/2, 1/2)
5 (1/2, 3/4)
6 (3/4, 1/4)
7 (3/4, 3/4)
REARRANGING POSITION INFORMATION
803
POSITION INFORMATION SUBSEQUENT TO REARRANGEMENT
(1/2, 1/2)
(1/2, 3/4)
(1/4, 1/2)
(1/4, 1/4)
(1/4, 3/4)
(3/4, 1/4)
(3/4, 3/4)

FIG. 9

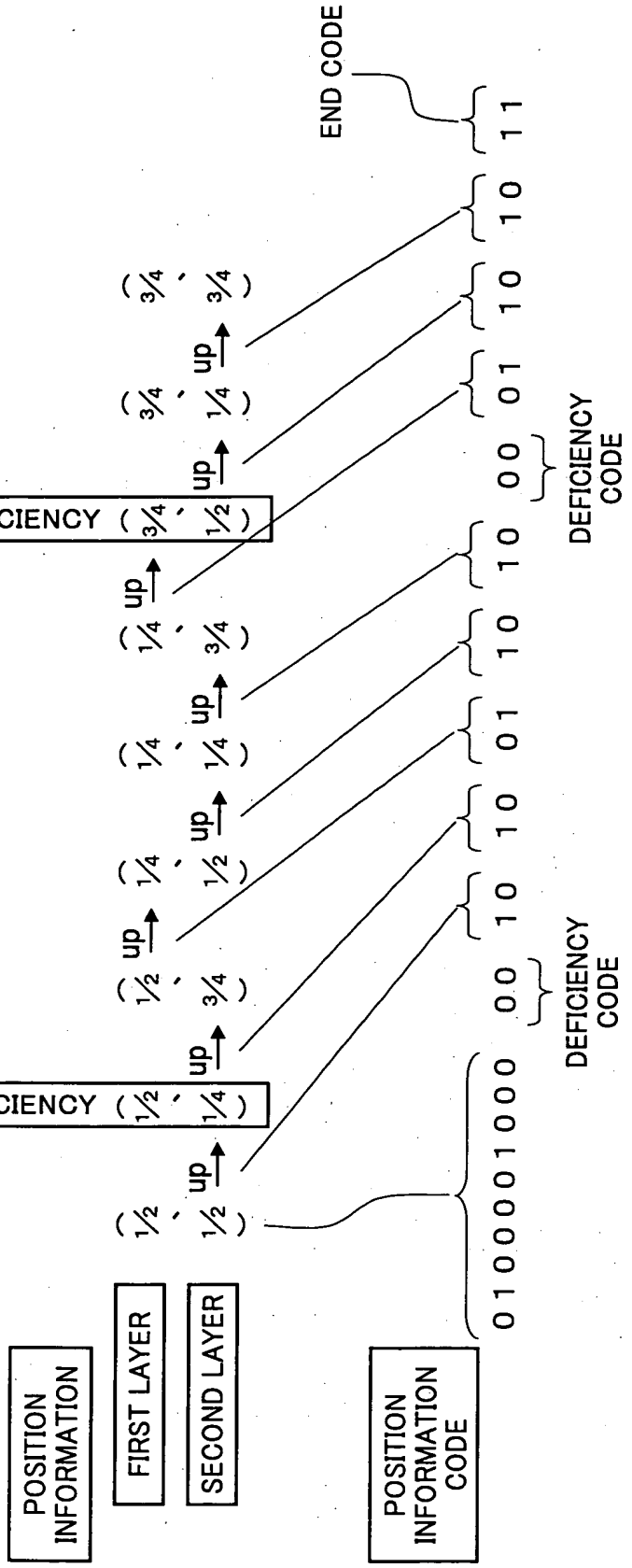

POSITION INFORMATION
FIRST LAYER
SECOND LAYER
POSITION INFORMATION CODE
DEFICIENCY
DEFICIENCY
DEFICIENCY CODE
DEFICIENCY CODE
END CODE
up
0 1 0 0 0 0 1 0 0 0
0 0
1 0
0 1
1 0
0 0
1 0
0 1
1 0
1 0
1 1

FIG. 10

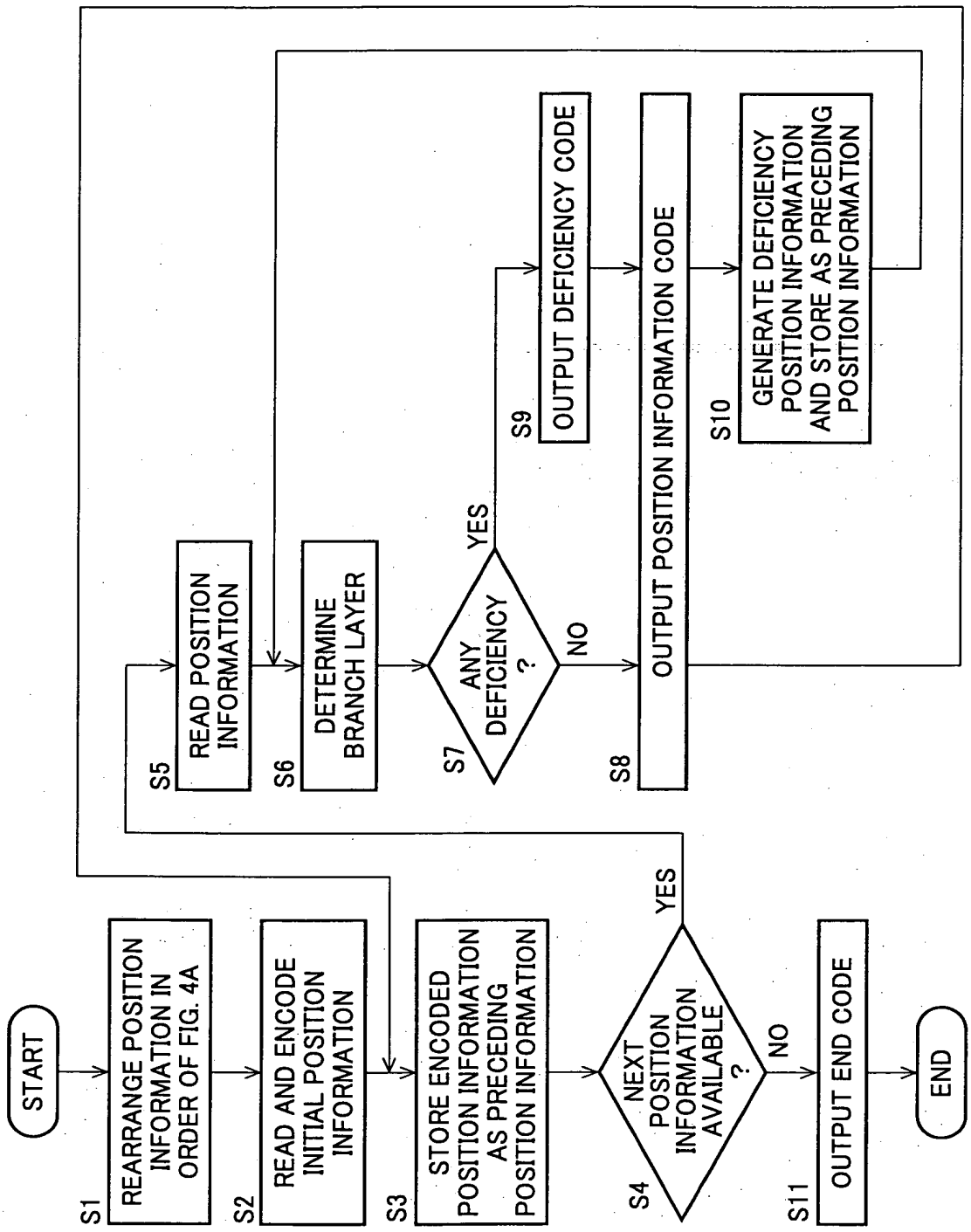

START
S1
REARRANGE POSITION INFORMATION IN ORDER OF FIG. 4A
S2
READ AND ENCODE INITIAL POSITION INFORMATION
S3
STORE ENCODED POSITION INFORMATION AS PRECEDING POSITION INFORMATION
S4
NEXT POSITION INFORMATION AVAILABLE ?
YES
NO
S5
READ POSITION INFORMATION
S6
DETERMINE BRANCH LAYER
S7
ANY DEFICIENCY ?
YES
NO
S8
OUTPUT POSITION INFORMATION CODE
S9
OUTPUT DEFICIENCY CODE
S10
GENERATE DEFICIENCY POSITION INFORMATION AND STORE AS PRECEDING POSITION INFORMATION
S11
OUTPUT END CODE
END

FIG. 11

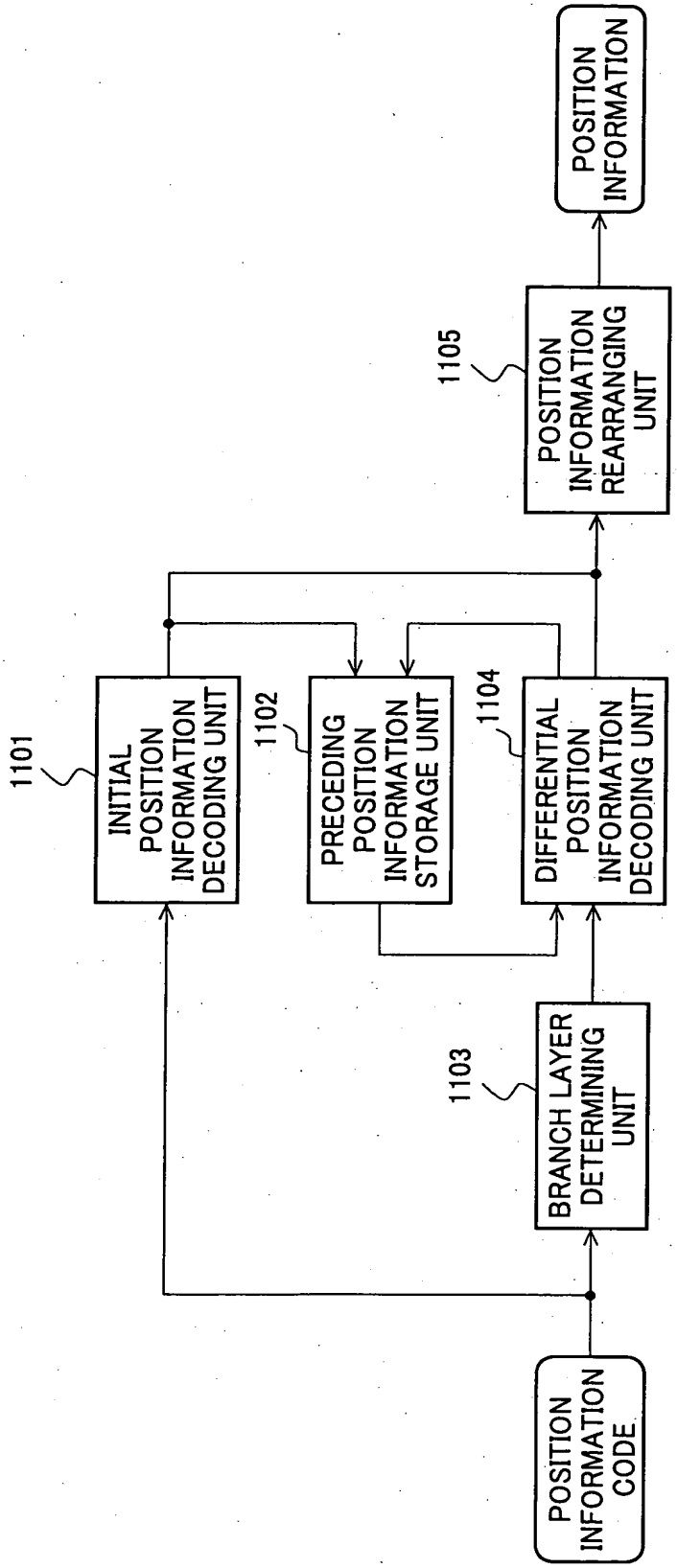

POSITION INFORMATION CODE
BRANCH LAYER DETERMINING UNIT
1103
INITIAL POSITION INFORMATION DECODING UNIT
1101
PRECEDING POSITION INFORMATION STORAGE UNIT
1102
DIFFERENTIAL POSITION INFORMATION DECODING UNIT
1104
POSITION INFORMATION REARRANGING UNIT
1105
POSITION INFORMATION

FIG. 12

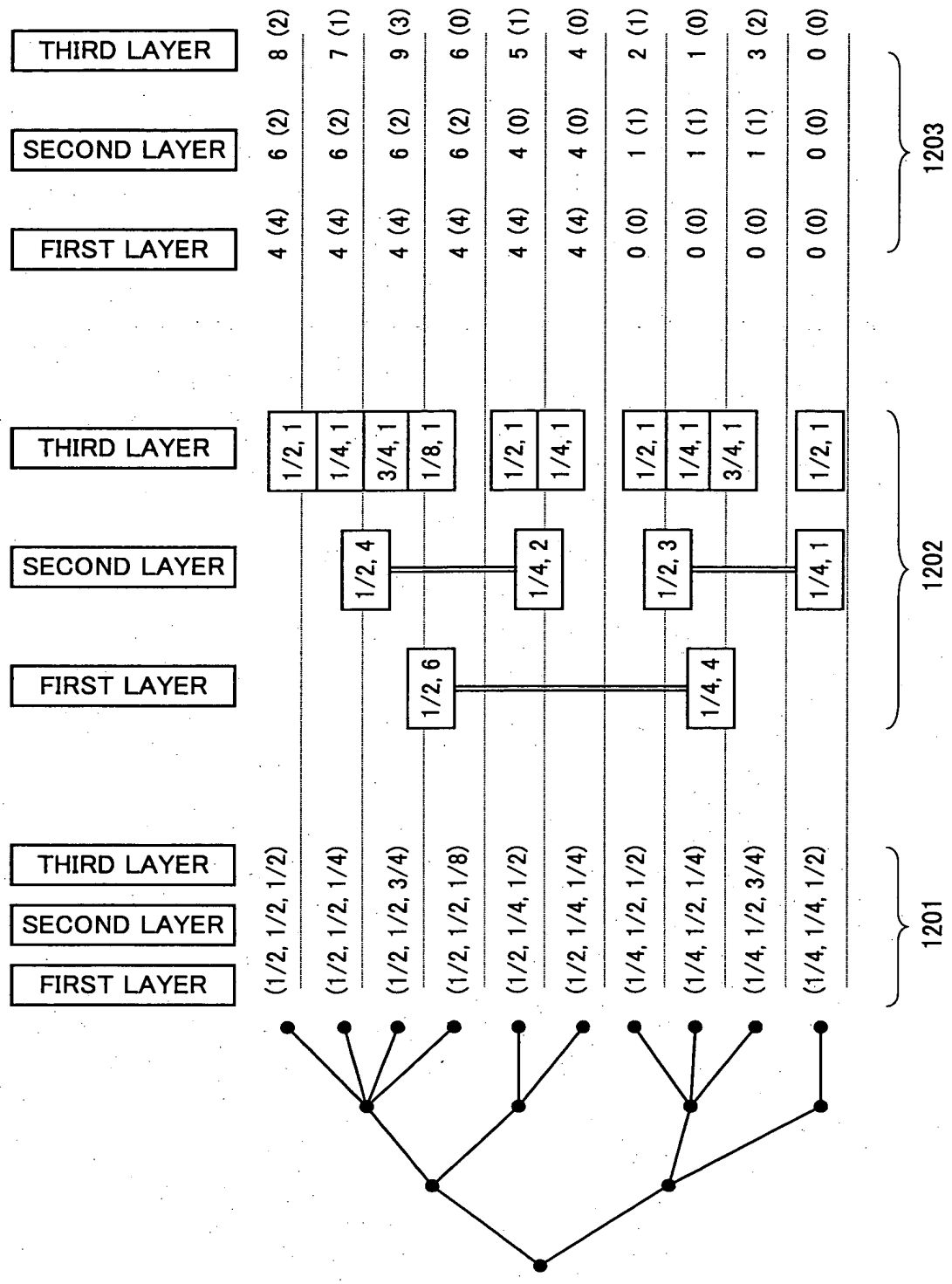

THIRD LAYER
SECOND LAYER
FIRST LAYER
8 (2)
7 (1)
9 (3)
6 (0)
5 (1)
4 (0)
2 (1)
1 (0)
3 (2)
0 (0)
6 (2)
4 (0)
1 (1)
4 (4)
0 (0)
1203
1/2, 1
1/4, 1
3/4, 1
1/8, 1
1/2, 4
1/4, 2
1/2, 3
1/4, 1
1/2, 6
1/4, 4
1202
(1/2, 1/2, 1/2)
(1/2, 1/2, 1/4)
(1/2, 1/2, 3/4)
(1/2, 1/2, 1/8)
(1/2, 1/4, 1/2)
(1/2, 1/4, 1/4)
(1/4, 1/2, 1/2)
(1/4, 1/2, 1/4)
(1/4, 1/2, 3/4)
(1/4, 1/4, 1/2)
1201

FIG. 13

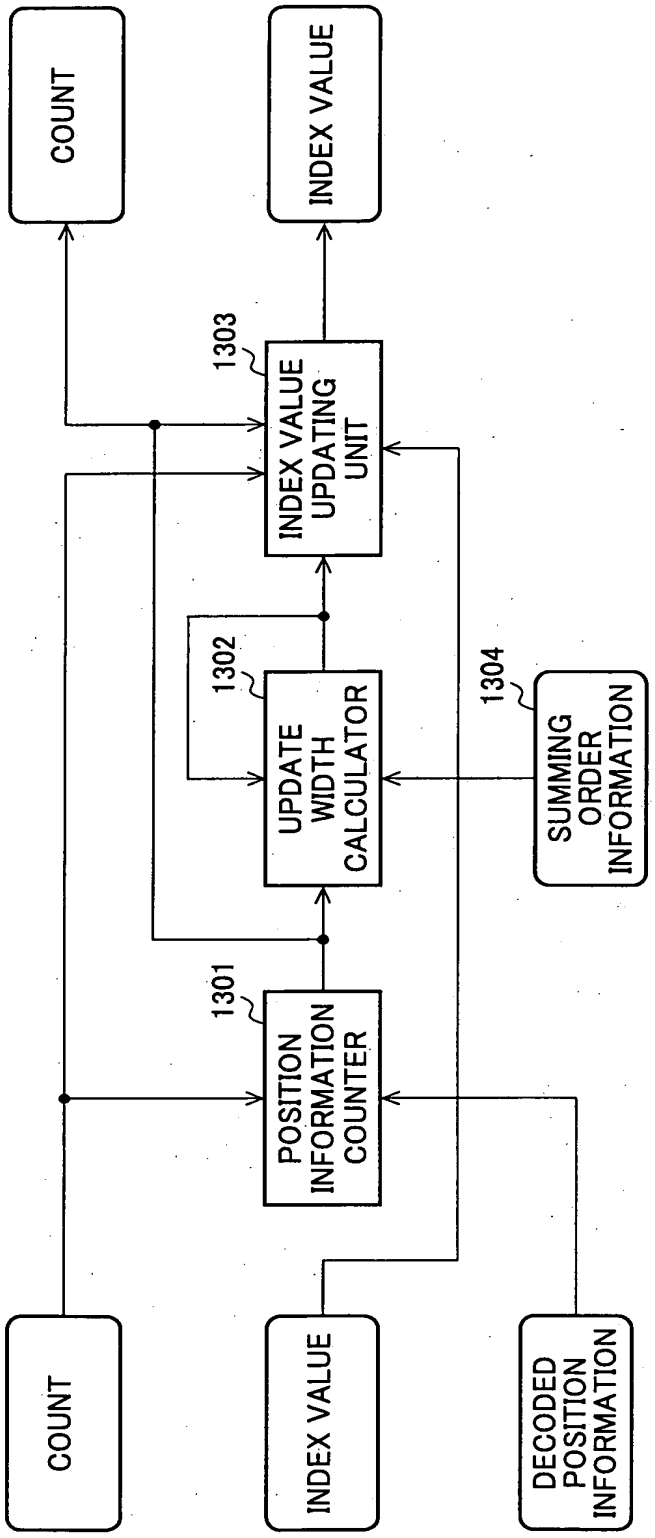

COUNT
INDEX VALUE
1303
INDEX VALUE UPDATING UNIT
1302
UPDATE WIDTH CALCULATOR
1304
SUMMING ORDER INFORMATION
1301
POSITION INFORMATION COUNTER
COUNT
INDEX VALUE
DECODED POSITION INFORMATION

FIG. 14

1401

DECODING ORDER (COUNTING ORDER)	DECODED VALUE	COUNT	SUMMING ORDER
1	1/2	M_1	2
2	1/4	M_2	1
3	3/4	M_3	3

FIG.15

1501

DECODING ORDER (COUNTING ORDER)	DECODED VALUE	COUNT	SUMMING ORDER
1	1/2	M_1	4
2	1/4	M_2	2
3	3/4	M_3	6
4	1/8	M_4	1
5	3/8	M_5	3
6	5/8	M_6	5
7	7/8	M_7	7

FIG. 16

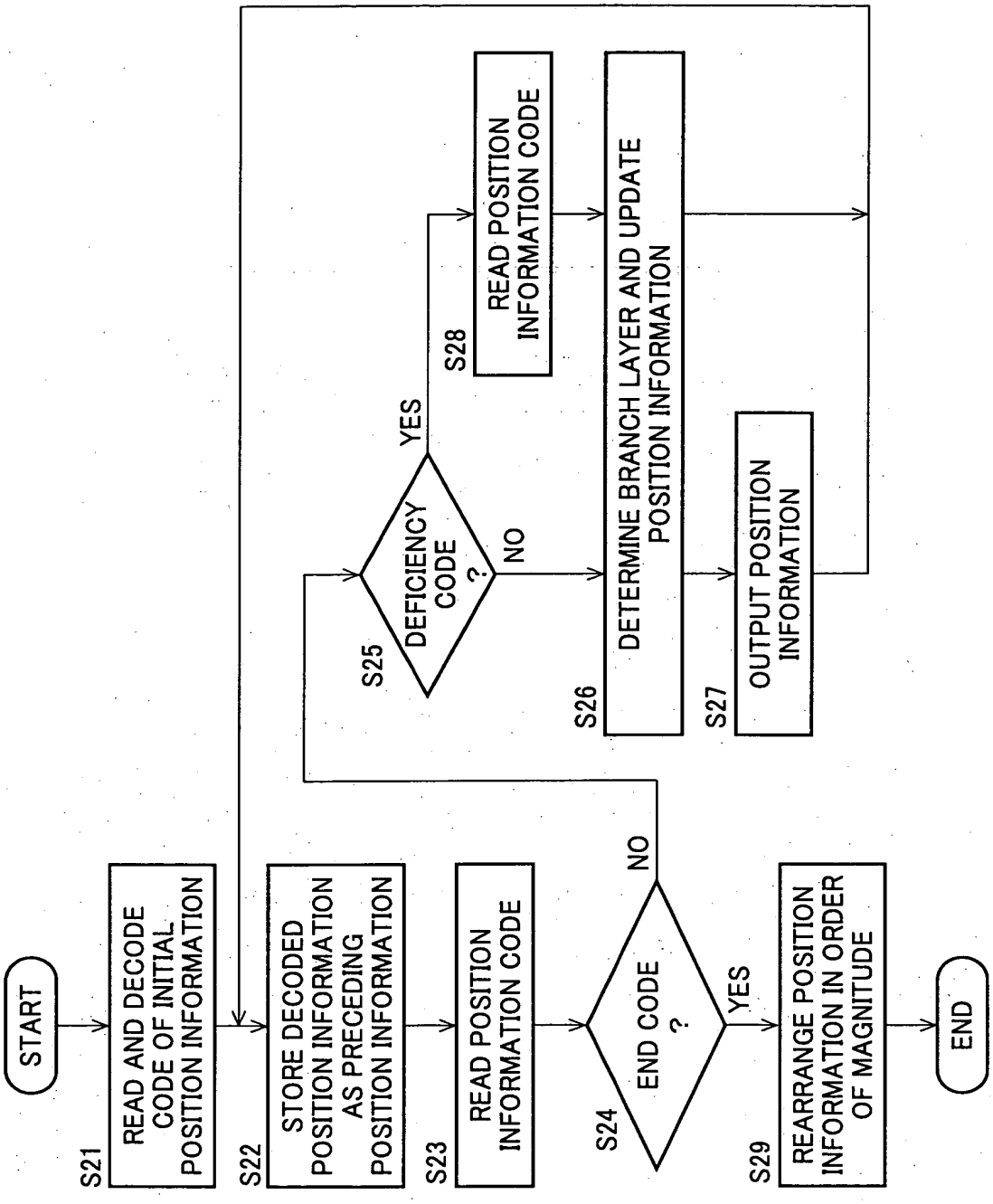

START
S21
READ AND DECODE CODE OF INITIAL POSITION INFORMATION
S22
STORE DECODED POSITION INFORMATION AS PRECEDING POSITION INFORMATION
S23
READ POSITION INFORMATION CODE
S24
END CODE ?
NO
YES
S29
REARRANGE POSITION INFORMATION IN ORDER OF MAGNITUDE
END
S25
DEFICIENCY CODE ?
YES
NO
S28
READ POSITION INFORMATION CODE
S26
DETERMINE BRANCH LAYER AND UPDATE POSITION INFORMATION
S27
OUTPUT POSITION INFORMATION

FIG. 17

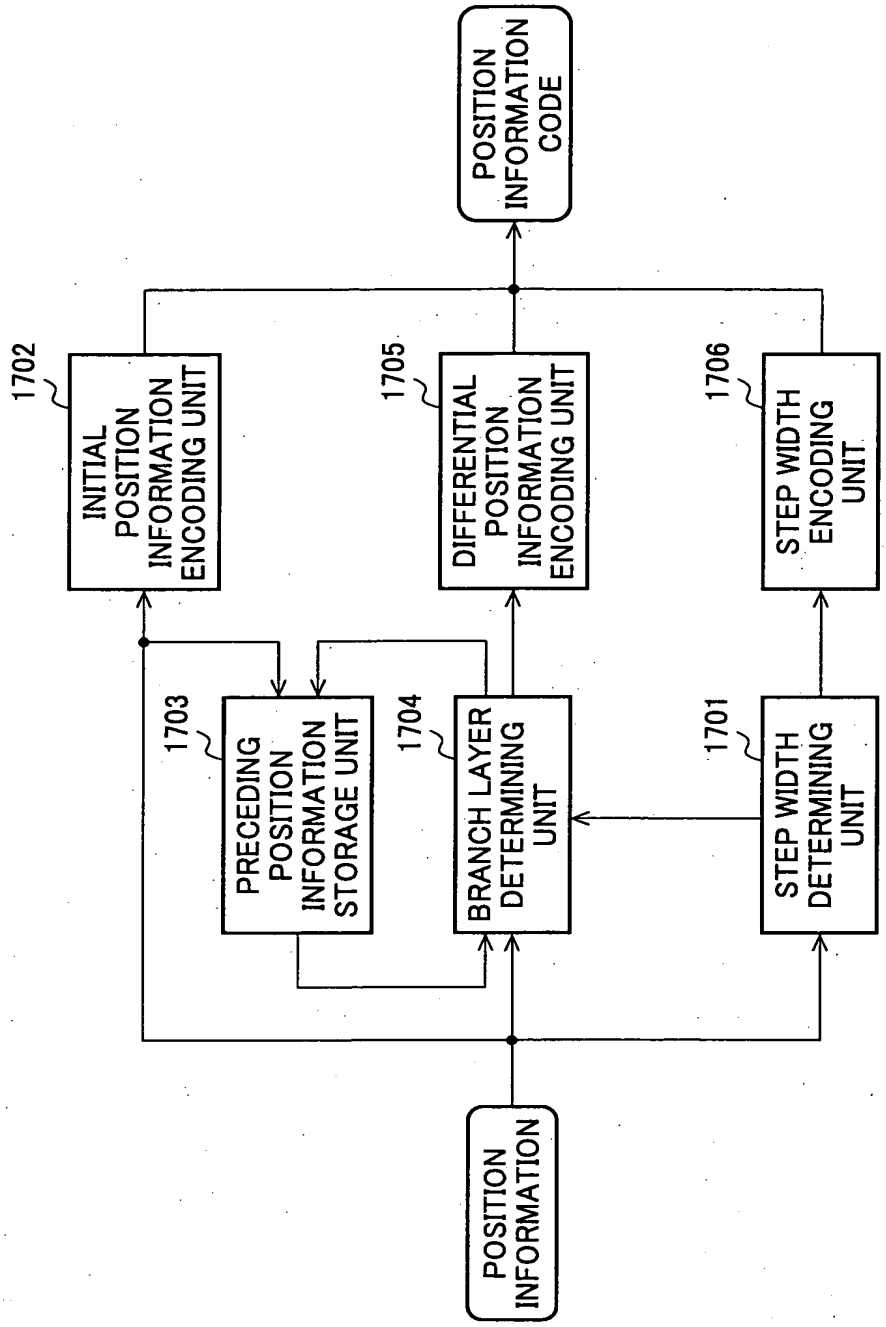

POSITION INFORMATION CODE
1702
INITIAL POSITION INFORMATION ENCODING UNIT
1705
DIFFERENTIAL POSITION INFORMATION ENCODING UNIT
1706
STEP WIDTH ENCODING UNIT
1703
PRECEDING POSITION INFORMATION STORAGE UNIT
1704
BRANCH LAYER DETERMINING UNIT
1701
STEP WIDTH DETERMINING UNIT
POSITION INFORMATION

FIG. 18

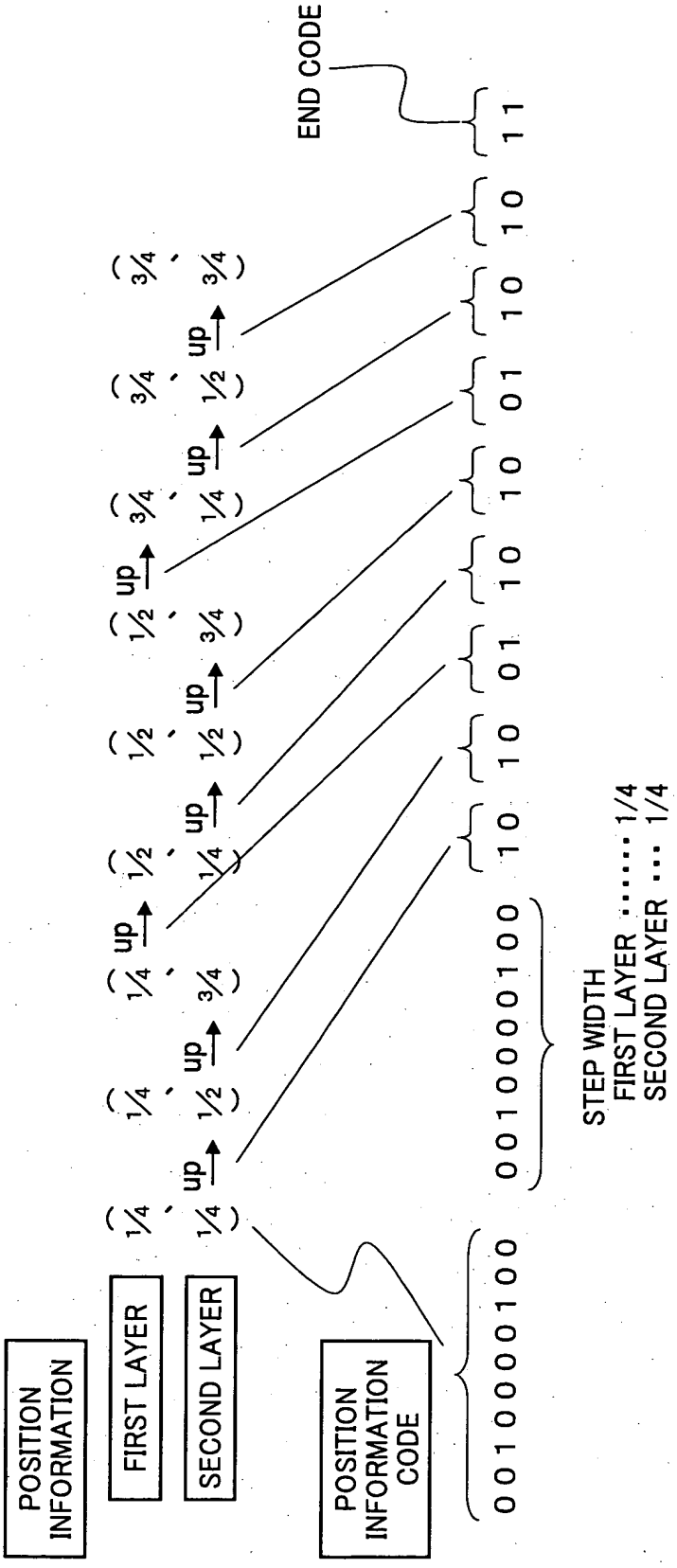

POSITION INFORMATION
FIRST LAYER
SECOND LAYER
POSITION INFORMATION CODE
END CODE
STEP WIDTH
FIRST LAYER 1/4
SECOND LAYER ... 1/4
0 0 1 0 0 0 0 1 0 0
0 0 1 0 0 0 0 1 0 0
1 0
0 1
1 0
1 0
0 1
1 0
1 0
1 0
0 1
1 0
1 0
1 1

FIG. 19

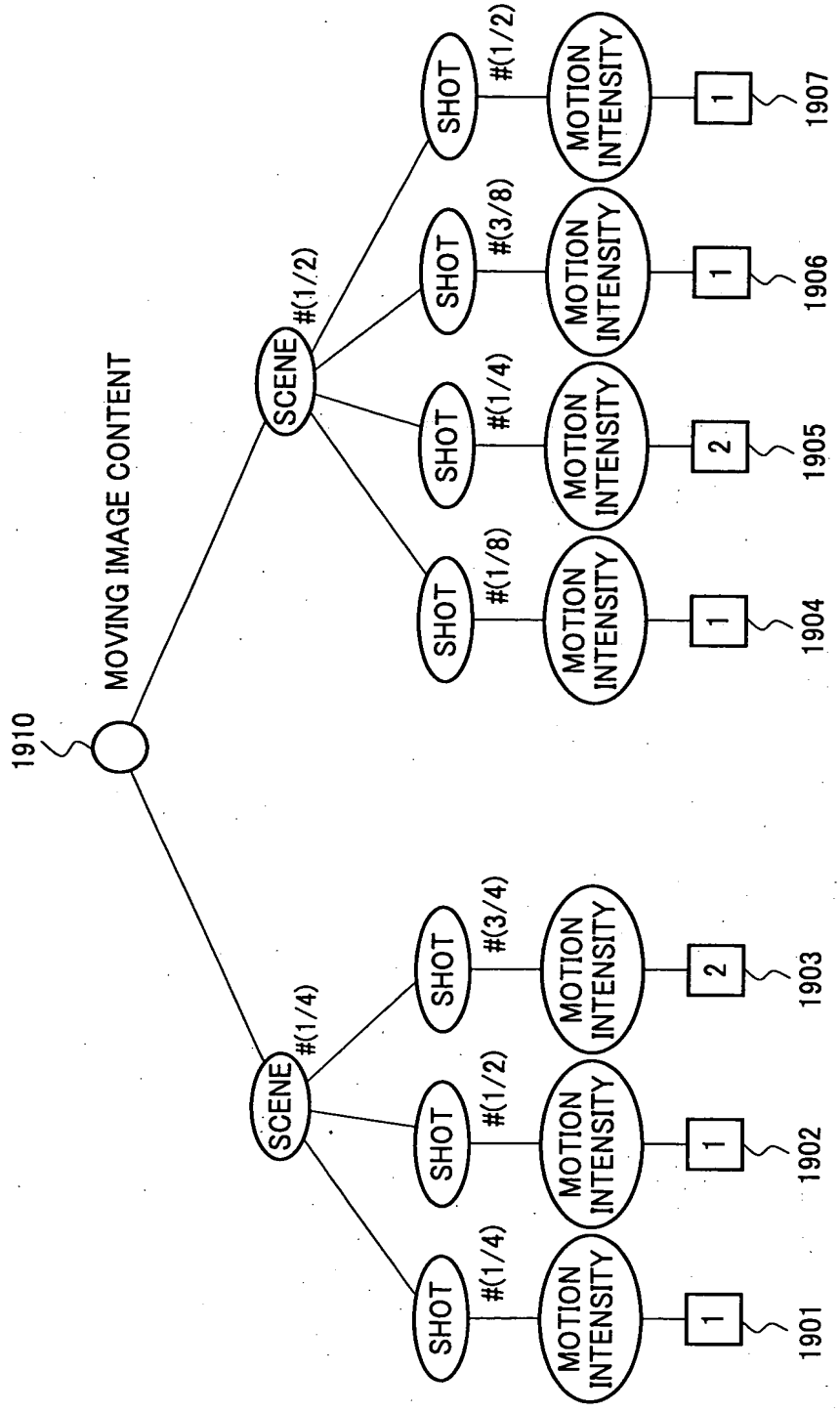

MOVING IMAGE CONTENT
1910
SCENE
#(1/4)
SCENE
#(1/2)
SHOT
#(1/4)
SHOT
#(1/2)
SHOT
#(3/4)
SHOT
#(1/8)
SHOT
#(1/4)
SHOT
#(3/8)
SHOT
#(1/2)
MOTION INTENSITY
1
2
1901
1902
1903
1904
1905
1906
1907

FIG. 20

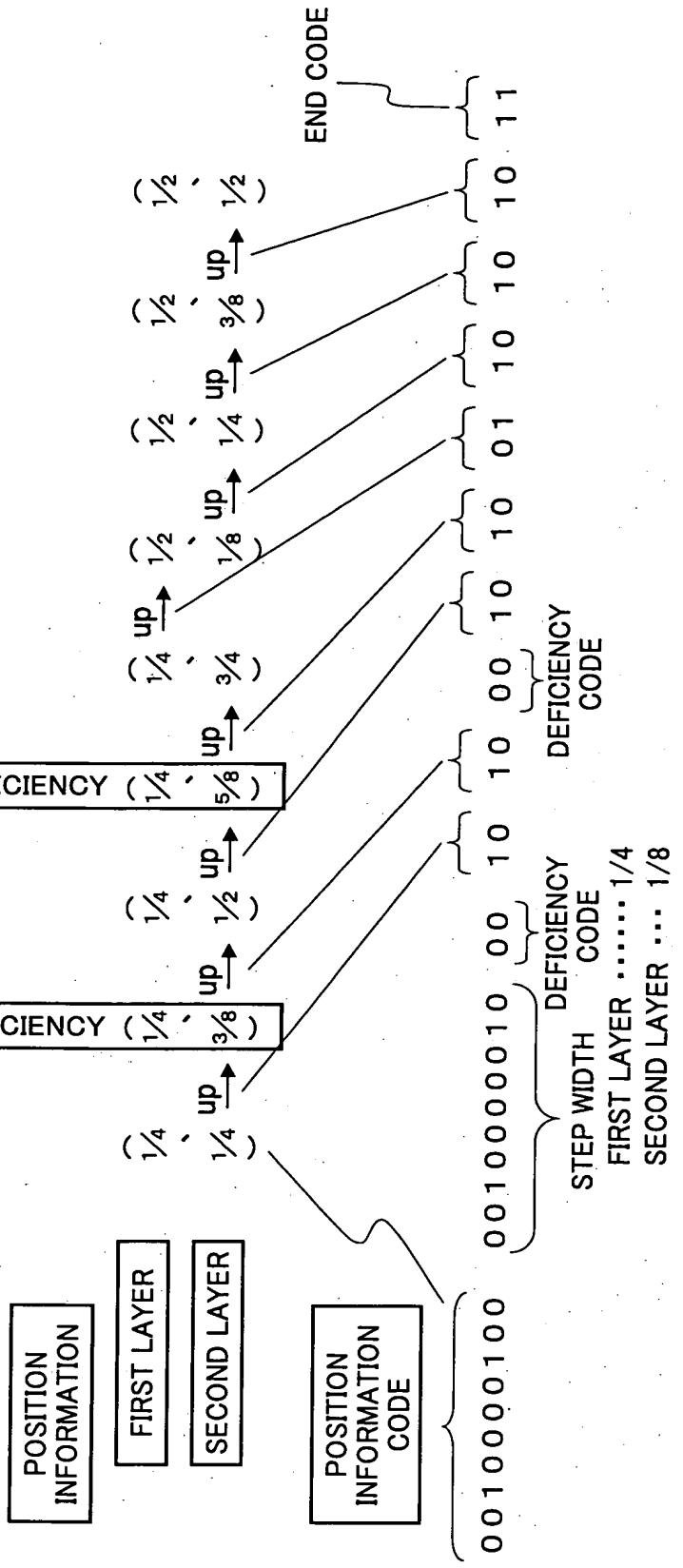

POSITION INFORMATION
FIRST LAYER
SECOND LAYER
POSITION INFORMATION CODE
DEFICIENCY
DEFICIENCY
up
END CODE
DEFICIENCY CODE
STEP WIDTH
FIRST LAYER 1/4
SECOND LAYER ... 1/8
0 0 1 0 0 0 0 1 0 0
0 0 1 0 0 0 0 0 1 0 0 0
0 0 1 0 0 0 0 0 1 0 1 0
0 0 1 0 0 0 0 0 1 0 0 1 0
0 0 1 0 0 0 0 0 1 0 0 1 1
0 0 1 0 0 0 0 0 1 0 1 0 0
0 0 1 0 0 0 0 0 1 0 1 0 1
0 0 1 0 0 0 0 0 1 0 1 1 0
0 0 1 0 0 0 0 0 1 0 1 1 1

FIG. 21

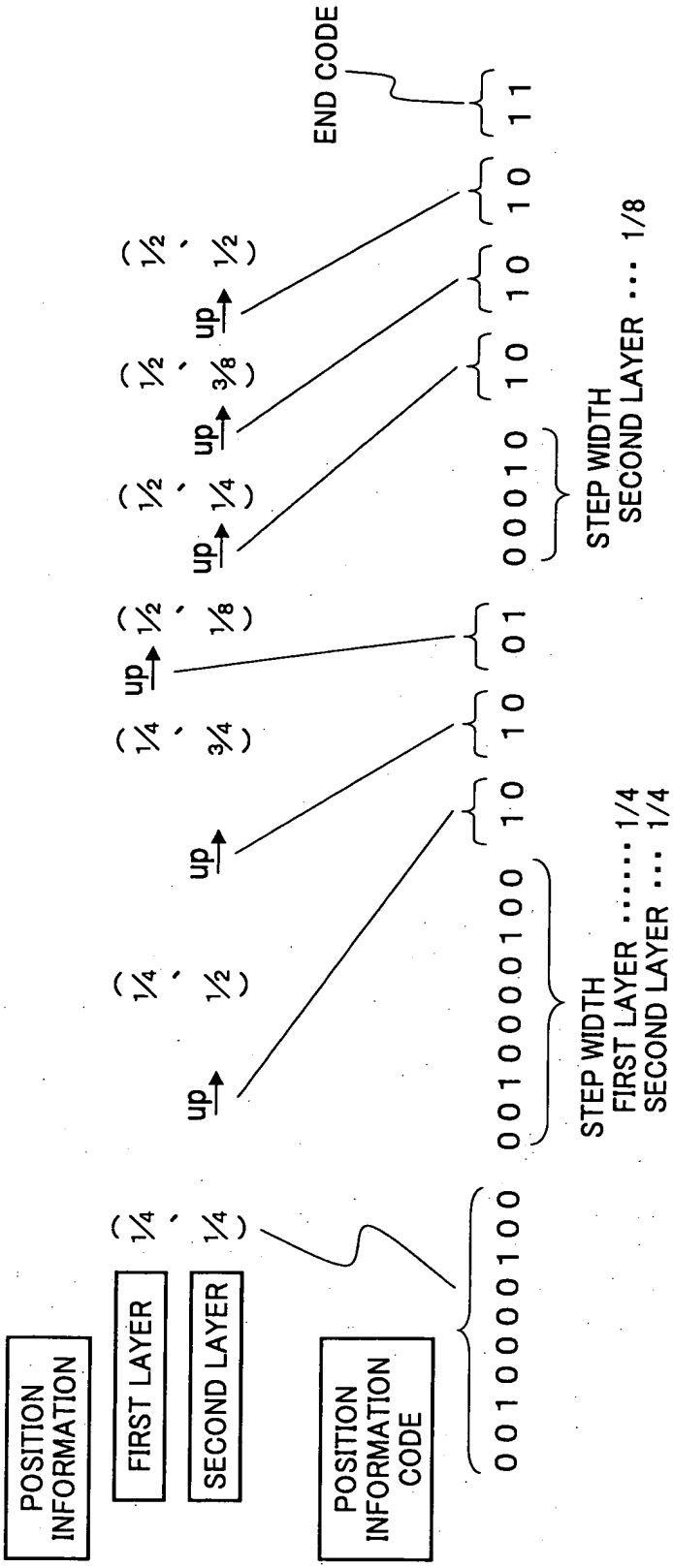

POSITION INFORMATION
FIRST LAYER
SECOND LAYER
POSITION INFORMATION CODE
(1/4, 1/4)
up
(1/4, 1/2)
up
(1/4, 3/4)
up
(1/2, 1/8)
up
(1/2, 1/4)
up
(1/2, 3/8)
up
(1/2, 1/2)
END CODE
0 0 1 0 0 0 0 1 0 0
0 0 1 0 0 0 0 1 0 0 1 0
0 0 1 0 0 0 0 1 0 0 1 0 0 1
0 0 0 1 0
0 0 0 1 0 1 0
0 0 0 1 0 1 0 1 0
0 0 0 1 0 1 0 1 0 1 0
0 0 0 1 0 1 0 1 0 1 0 1 1
STEP WIDTH
FIRST LAYER 1/4
SECOND LAYER ... 1/4
STEP WIDTH
SECOND LAYER ... 1/8

FIG. 22

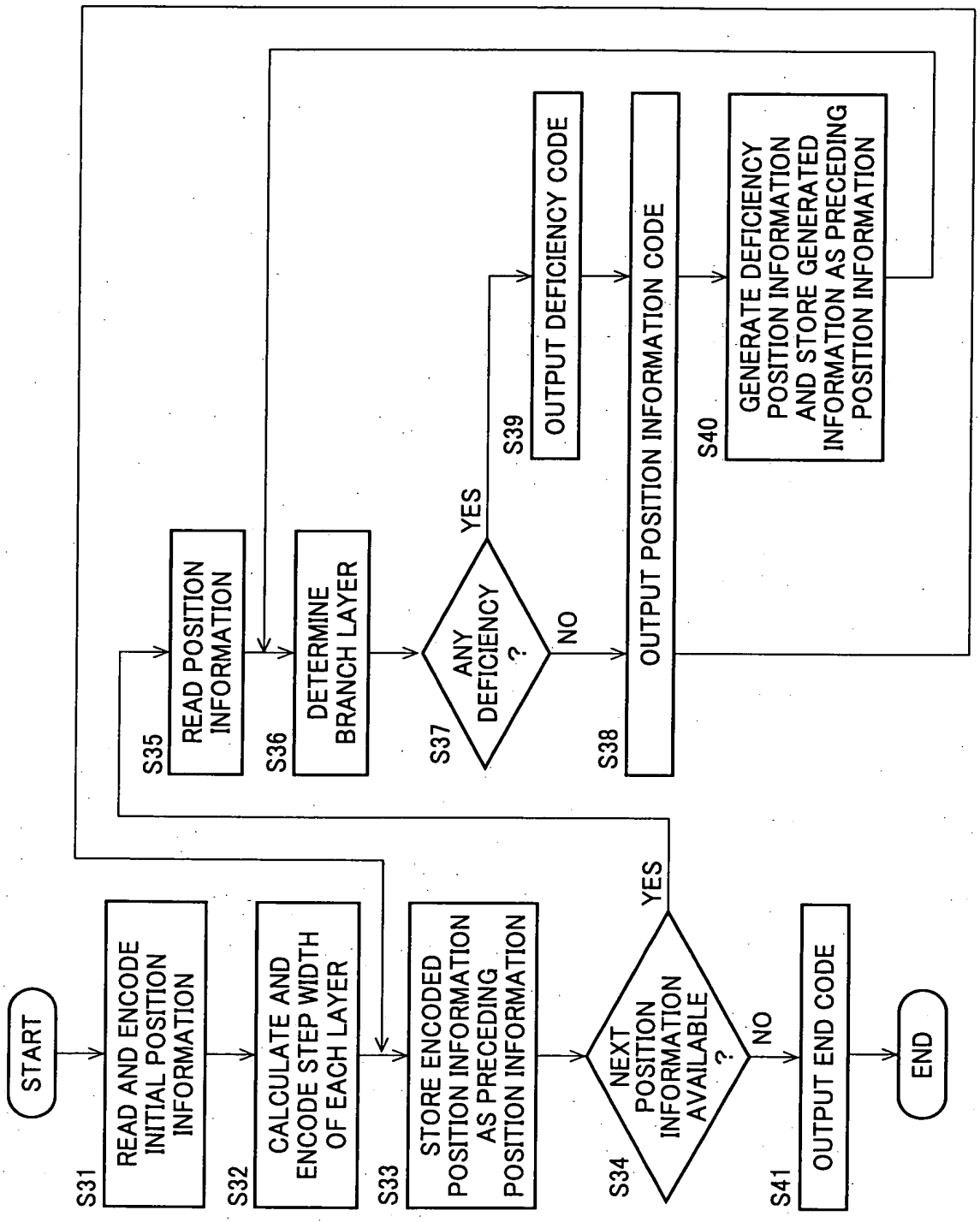

START
S31
READ AND ENCODE INITIAL POSITION INFORMATION
S32
CALCULATE AND ENCODE STEP WIDTH OF EACH LAYER
S33
STORE ENCODED POSITION INFORMATION AS PRECEDING POSITION INFORMATION
S34
NEXT POSITION INFORMATION AVAILABLE ?
YES
NO
S41
OUTPUT END CODE
END
S35
READ POSITION INFORMATION
S36
DETERMINE BRANCH LAYER
S37
ANY DEFICIENCY ?
YES
NO
S39
OUTPUT DEFICIENCY CODE
S38
OUTPUT POSITION INFORMATION CODE
S40
GENERATE DEFICIENCY POSITION INFORMATION AND STORE GENERATED INFORMATION AS PRECEDING POSITION INFORMATION

FIG. 23

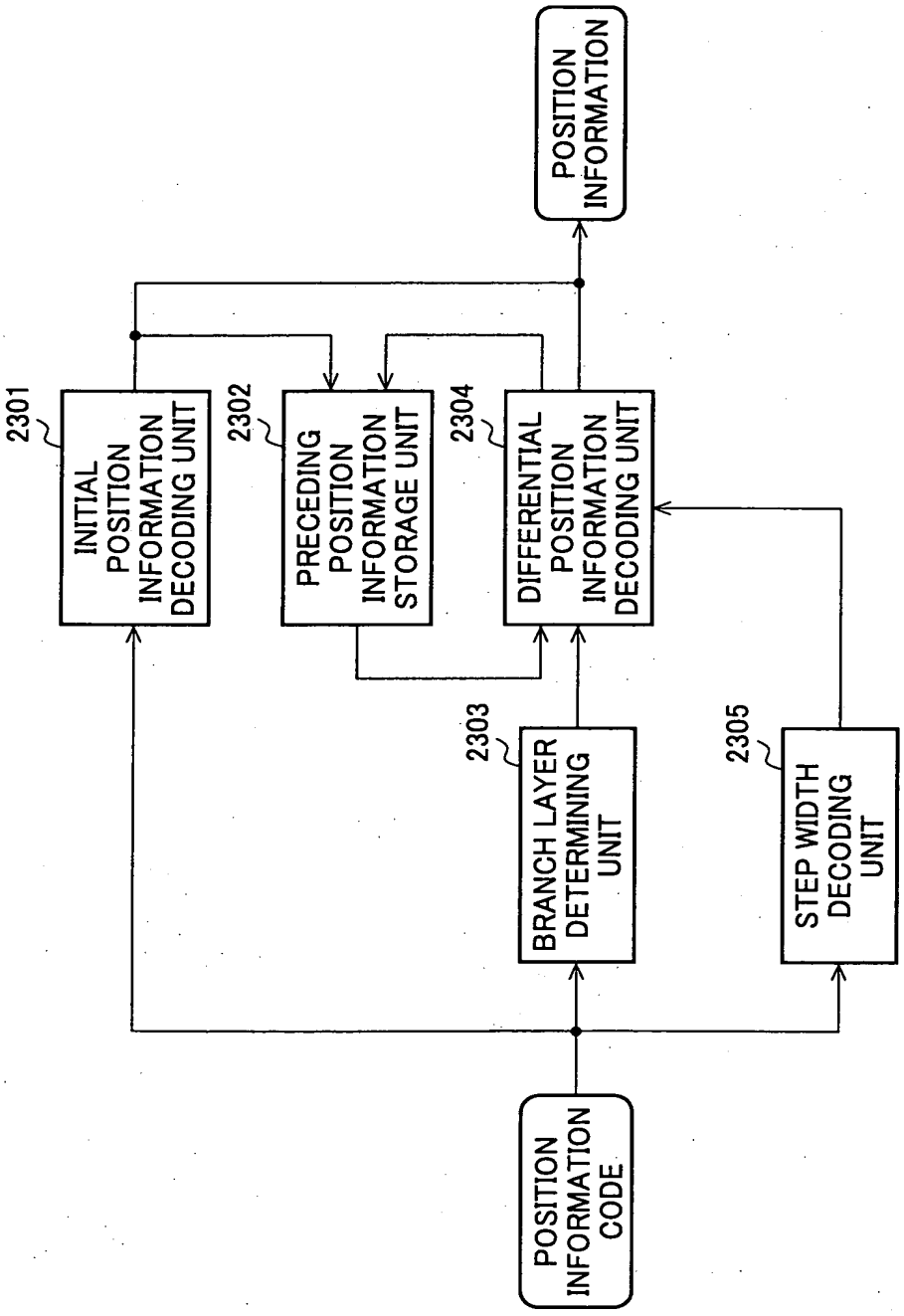

POSITION INFORMATION
2301
INITIAL POSITION INFORMATION DECODING UNIT
2302
PRECEDING POSITION INFORMATION STORAGE UNIT
2304
DIFFERENTIAL POSITION INFORMATION DECODING UNIT
2303
BRANCH LAYER DETERMINING UNIT
2305
STEP WIDTH DECODING UNIT
POSITION INFORMATION CODE

FIG. 24

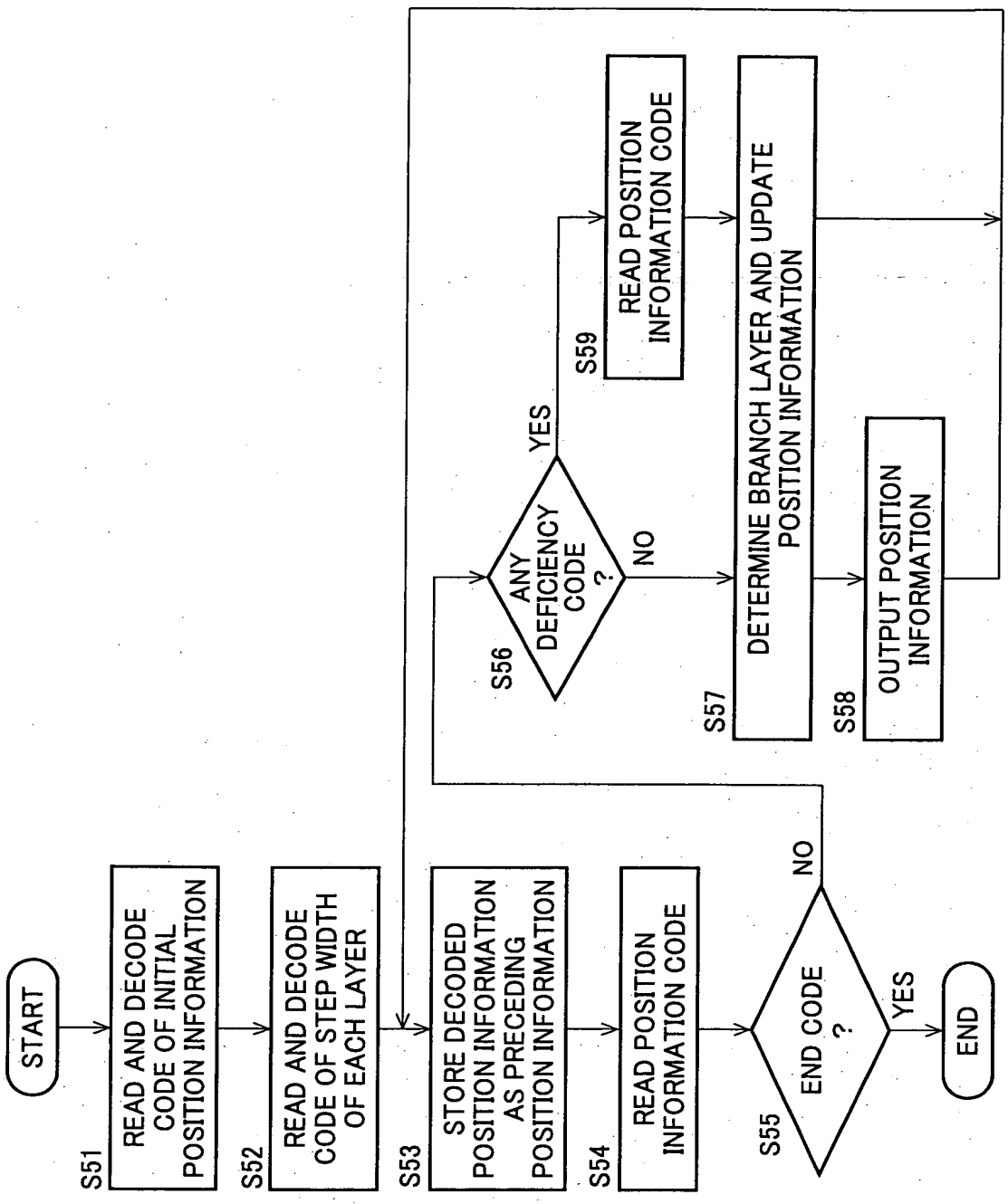

START
S51
READ AND DECODE CODE OF INITIAL POSITION INFORMATION
S52
READ AND DECODE CODE OF STEP WIDTH OF EACH LAYER
S53
STORE DECODED POSITION INFORMATION AS PRECEDING POSITION INFORMATION
S54
READ POSITION INFORMATION CODE
S55
END CODE ?
NO
YES
END
S56
ANY DEFICIENCY CODE ?
YES
NO
S59
READ POSITION INFORMATION CODE
S57
DETERMINE BRANCH LAYER AND UPDATE POSITION INFORMATION
S58
OUTPUT POSITION INFORMATION

FIG. 25

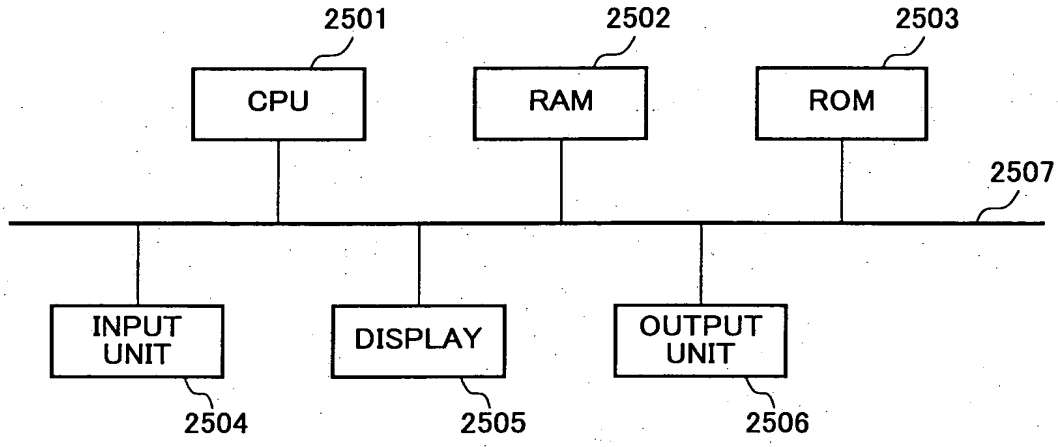

2501
2502
2503
CPU
RAM
ROM
2507
INPUT UNIT
DISPLAY
OUTPUT UNIT
2504
2505
2506

FIG. 26

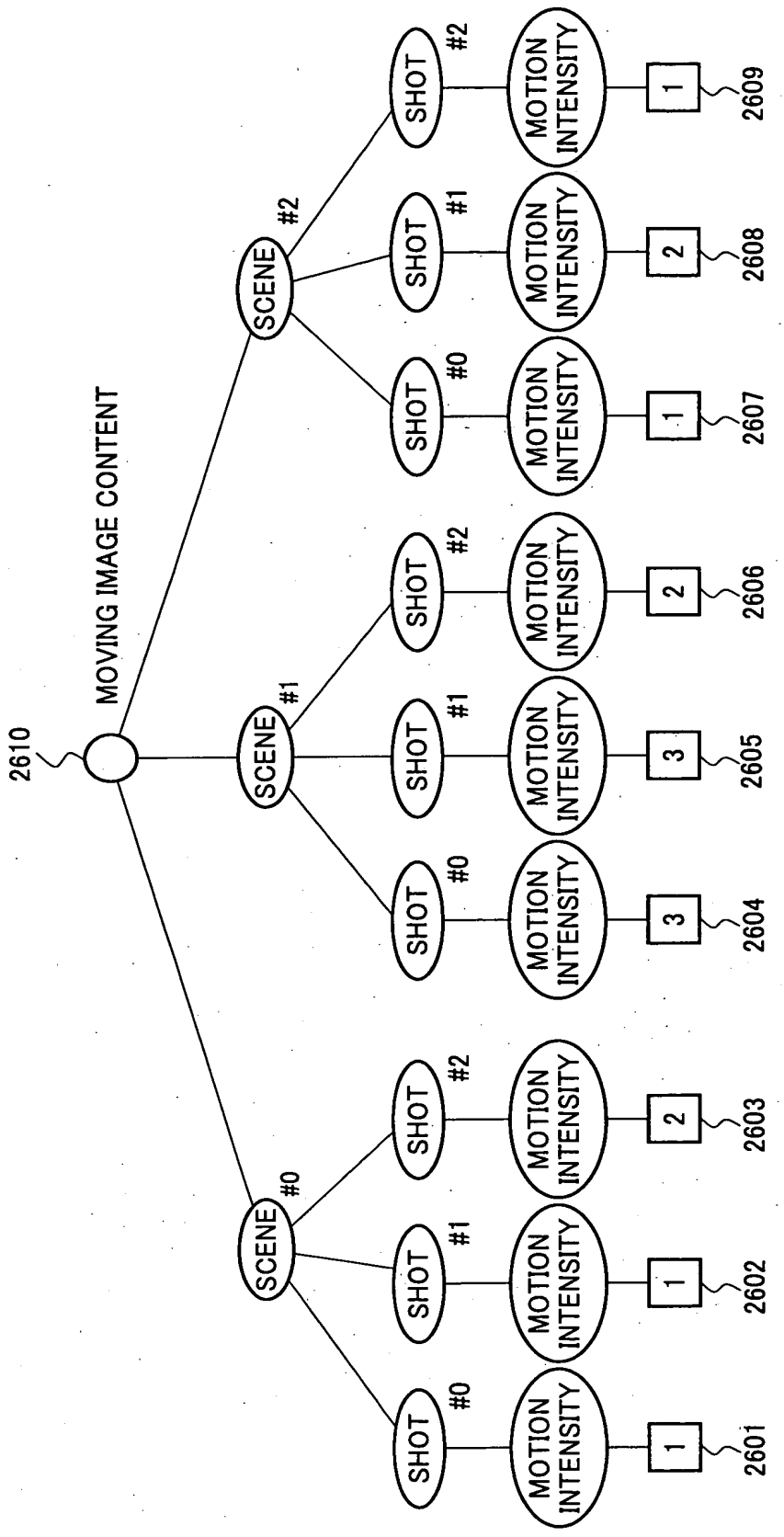

2610
MOVING IMAGE CONTENT
SCENE #0
SCENE #1
SCENE #2
SHOT #0
SHOT #1
SHOT #2
MOTION INTENSITY
1
2
3
2601
2602
2603
2604
2605
2606
2607
2608
2609

FIG. 27

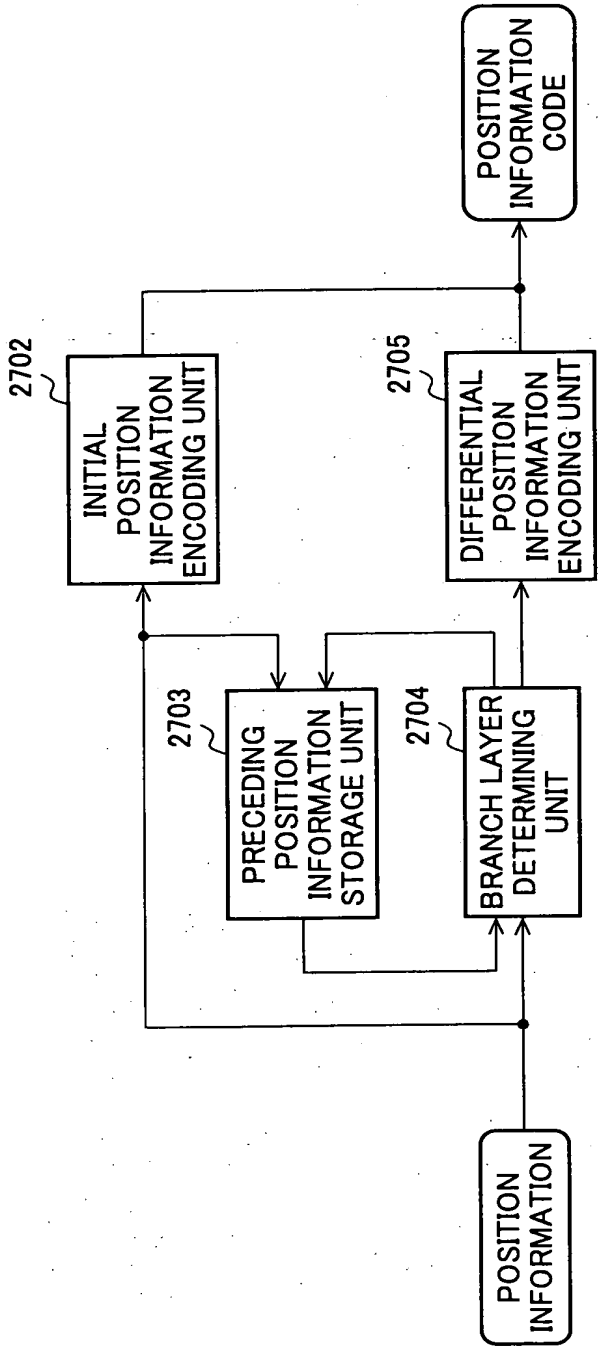

POSITION INFORMATION CODE
2702
INITIAL POSITION INFORMATION ENCODING UNIT
2705
DIFFERENTIAL POSITION INFORMATION ENCODING UNIT
2703
PRECEDING POSITION INFORMATION STORAGE UNIT
2704
BRANCH LAYER DETERMINING UNIT
POSITION INFORMATION

FIG. 28

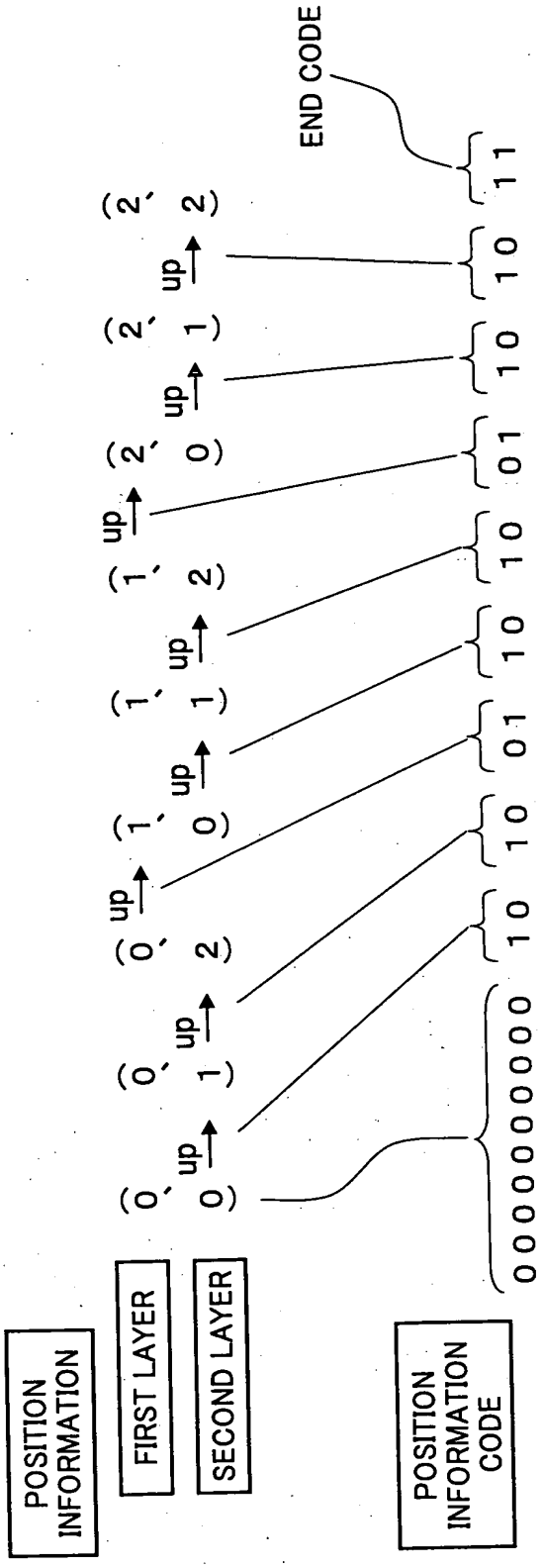
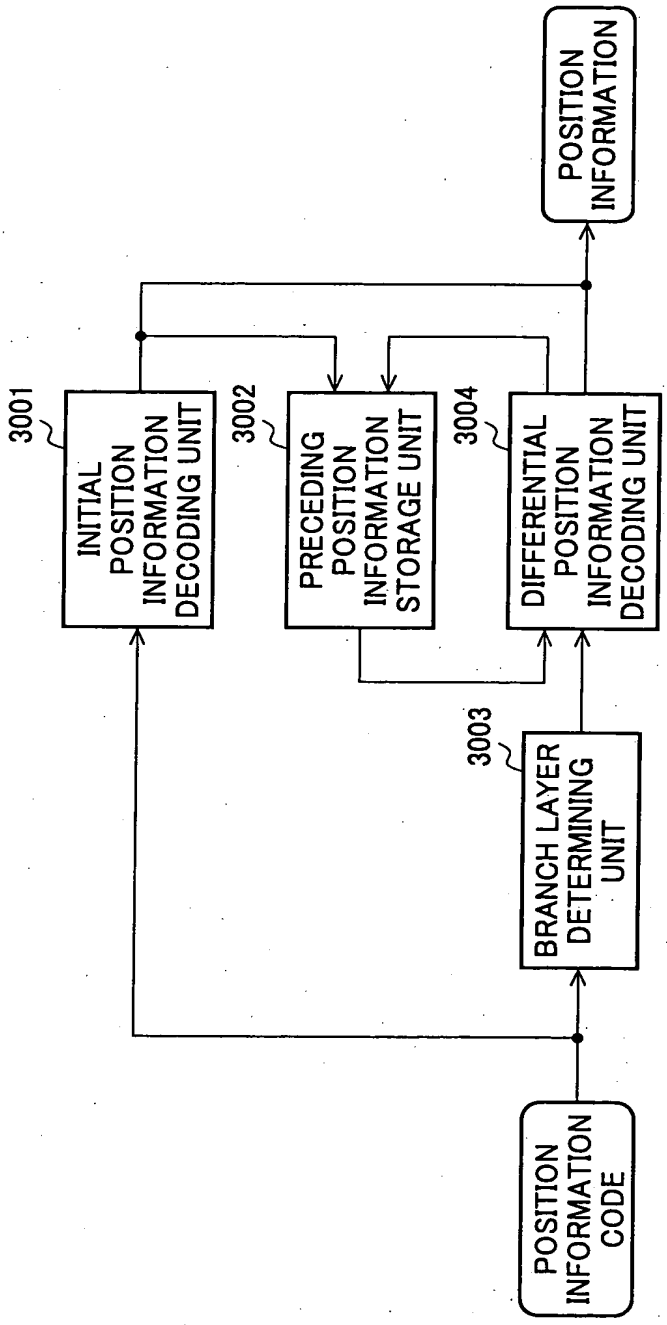

POSITION INFORMATION
FIRST LAYER
SECOND LAYER
POSITION INFORMATION CODE
END CODE
(0, 0)
up
(0, 1)
up
(0, 2)
up
(1, 0)
up
(1, 1)
up
(1, 2)
up
(2, 0)
up
(2, 1)
up
(2, 2)
up
0000000000
10
10
01
10
10
01
10
10
11

FIG. 29

CODE (BINARY NOTATION)	MEANING OF CODE
01	INCREASE BY ONE IN FIRST LAYER (LOWER LAYER SET TO INITIAL VALUE 0)
10	INCREASE BY ONE IN SECOND LAYER
11	END CODE

FIG. 30


POSITION INFORMATION
3001
INITIAL POSITION INFORMATION DECODING UNIT
3002
PRECEDING POSITION INFORMATION STORAGE UNIT
3004
DIFFERENTIAL POSITION INFORMATION DECODING UNIT
3003
BRANCH LAYER DETERMINING UNIT
POSITION INFORMATION CODE